

Updates from the Field

Protecting Health and Building Capacity Globally

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Message from the Director

Dear Colleagues:

At the beginning of 2012, the U.S. Centers for Disease Control and Prevention (CDC), Center for Global Health (CGH) conducted an organizational improvement assessment and as a result, the



—Capt. Jordan W. Tappero, MD, MPH

Division of Global Health Protection (DGHP) was established and has now been officially approved as an entity within CGH.

DGHP draws upon the expertise of subject matter experts from within the division and from across the agency to provide assistance to Ministries of Health around the world. The Division's mission is to improve the health and well-being of Americans and other people around the world. We look to accomplish this work by promoting the advancement of strong public health systems and ensuring global health security.

As the first permanent Director of DGHP, I am excited about the opportunity to provide leadership and overall strategic direction for the Division's activities and ensure that our work is aligned with CDC's strategic objectives.

Since coming to CDC as an Epidemic Intelligence Service (EIS) Officer in 1992, I have served in a range of leadership positions at CDC headquarters in Atlanta, Georgia, as well as in Botswana, including serving as CDC Country Director in both Thailand and Uganda. Prior to accepting the DGHP Director position, I served as Director of CDC's Health Systems Reconstruction Office (HRSO) from 2010-2012, supporting post-earthquake public

health recovery activities in Haiti, including emergency response for epidemic cholera. From January through November 2013, I served as the Associate Director for Science, CGH. These experiences have given me tremendous insight and hands-on experience with the public health challenges we face on a daily basis and in times of crisis.

While we have made significant strides in improving public health globally, I am confident that in the months and years ahead, working together we can make even greater improvements in helping countries build core capacities to prevent disease, disability and death from emerging and reemerging infectious diseases, natural and man-made disasters and non-communicable diseases.

As we come to the close of 2013, I want to thank our staff in the U.S. and around the globe for their hard work and commitment to helping partner countries build essential systems to meet their own public health priorities and requirements of the International Health Regulations. I also want to thank our partners and subject matter experts both within CDC and beyond; your support has been critical to the progress we have made in improving health globally. Finally, I would like to recognize the many ministries of health, academic institutions, and other external organizations we work with in the U.S. and around the world and reconfirm our commitment to working with you to improve public health and ensure global health security.

I wish you and your families a peaceful and healthy holiday season and look forward to working with you in 2014.

— Capt. (USPHS) Jordan W. Tappero, MD, MPH
Director, Division of Global Health Protection
Center for Global Health
U.S. Centers for Disease Control and Prevention

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Happy Holidays

Seeking Submissions...

If you would like your program to be featured in an upcoming issue of *Updates from the Field*, please send a 200-400 word summary of your program's activities and photos to Ruth Cooke Gibbs at icn6@cdc.gov.

Highlights of Investigations

Angola FELTP Respond to Country's First Identified Dengue Epidemic



Angola-FELTP residents preparing for field work during the Dengue Survey. (Left to Right) C. Teixeira, M. Jose Soares, L. Costa, J. Paixao, C. Sicato, J. Manuel, P. Lussukamu.



Angola FELTP Resident, Dr. Luis Miguel and first responders from the Provincial Health Department of Luanda and Chinese Health Officers conducting interviews and taking blood samples from patients in Angola during dengue outbreak.

Submitted by: Dr. Rosa Moreira, Resident Advisor, Angola FELTP

In March 2013, two patients complaining of headache, fever, and rash were admitted to a hospital in Luanda, the coastal capital city of Angola. When their health declined, they were evacuated to Portugal for further management. Specimens from both patients were sent to Portugal's Institute of Tropical Diseases for analysis, and test results confirmed both patients had dengue. Dengue, caused by any one of four related viruses that are transmitted by mosquitoes, has emerged as a leading cause of illness and death in the tropics and subtropics affecting as many as 400 million people yearly. There is neither a vaccine to prevent infection nor medications to treat people with dengue. The most effective way to prevent infection is to avoid mosquito bites. When infected, early recognition and prompt supportive treatment can substantially lower the risk of developing severe disease.

Because this was the first time dengue had been detected in Angola, the National Directorate of Hygiene and Epidemiology within the Angola Ministry of Health (MOH), reached out to the Angola Field Epidemiology and Laboratory Training Program (A-FELTP) for assistance. In response, Drs. Maria Jose Soares and Luis Miguel Costa, A-FELTP residents, accompanied by two members of the surveillance staff from the Province of Luanda, were deployed to conduct an outbreak investigation.

Drs. Soares and Costa visited the Luanda General Hospital and learned that patients from a construction company had been admitted to the company's Health Center with symptoms compatible with dengue: headache, fever, exhaustion, severe joint and muscle pain, swollen glands and rash. Blood samples were taken from all six patients and immediately transported to the reference laboratory. However, they soon encountered a problem: since dengue was not previously known to be a public health problem in Angola, the laboratory did not have the capability to test for dengue. Fortunately, Dr. Luis Miguel from the Angola FELTP remembered seeing some dengue rapid test kits when he was organizing a laboratory in the nearby province of Lunda

Norte during a malaria outbreak. He contacted the laboratory staff and asked them to send the test kits to Luanda.

Once the tests arrived, Dr. Luis Miguel tested the patients' samples; four of six were positive for dengue. The MOH responded immediately by purchasing dengue rapid tests and launching a community outreach campaign to alert the public and all

Health Units about the dengue outbreak and how to prevent the virus from spreading. In accordance with International Health Regulations, the MOH also notified the World Health Organization (WHO) and reached out to the U.S. Centers for Disease Control and Prevention (CDC) for assistance. CDC responded by providing research support and training to control the outbreak. Specimens from additional cases were sent to the Pasteur Institute in Dakar, Senegal, and CDC's Dengue Branch in Puerto Rico for confirmatory diagnostic testing. Results of this analysis confirmed that the outbreak was caused by a Dengue virus that has been circulating in western-central Africa over the past 45 years. This indicated that dengue has been endemic in the region for several decades, but likely under recognized clinically and misdiagnosed as malaria. According to the Angola MOH, as of August 29, 1,207 cases of dengue have been reported nationwide, of which 806 (67%) tested positive with a rapid diagnostic test. Of the 1,207 cases, nearly all occurred in the province of Luanda, although Kwanza Sul Province reported 16 cases in Sumbe, and Uige Province reported one case in Uige-Sede. The total number of rapid test-positive, dengue-associated fatalities was 11, all of which were reported from Luanda Province.

This is the first time that Angola has confirmed a dengue epidemic. In response, FELTP residents with the support of CDC's Dengue Branch conducted a household survey in Luanda, provided training for health workers (clinicians, nurses and lab technicians), conducted mosquito surveillance to identify the most abundant mosquito species and breeding sites, and carried out a community health education outreach campaign to educate the public about dengue. FELTP residents are continuing surveillance and analysis of findings and will provide a full report and recommendations to the MOH on dengue prevention measures to prevent or limit the morbidity and mortality associated with future dengue epidemics.

For further information, please contact Dr. Augusto Lopez at acl9@cdc.gov.

Highlights of Investigations

CDC Assists with First Reported Outbreak of Chikungunya virus in Yap State, Federated States of Micronesia

Submitted by: Serena Fuller, MPH, Emergency Coordinator, and Susan Hills, MD, MPH Medical Epidemiologist, CDC

In October 2013, clinicians in Yap State, Federated States of Micronesia, noticed an increase in the number of patients presenting with fever, rash, and joint pain. Yap has had previous dengue outbreaks, but samples from the current outbreak tested negative for dengue by rapid diagnostic test. Nevertheless, the epidemiology and clinical symptoms suggested a possible mosquito-borne disease.

On October 17, CDC received a request for assistance from Yap and samples were shipped to the Division of Vector-Borne Diseases (DVBD) in Fort Collins, Colorado. While an etiology was being sought via laboratory testing, CDC worked on logistics to deploy a team of epidemiologists. Because there are only two flights to Yap each week, DVBD acted quickly with support from the Emergency Operations Center and Global Disease Detection Operations Center to deploy three staff, including two Epidemic Intelligence Service Officers and one medical epidemiologist. After four flights and more than 24 hours in transit, they arrived in Yap to assist with describing the epidemiology of the outbreak and developing recommendations for prevention and control.

Shortly after their arrival, laboratory testing confirmed that the current outbreak was caused by Chikungunya virus, which allowed refinement of the case definition and a shift in clinical management and response activities. Chikungunya virus was first identified in East Africa and has since caused outbreaks on islands in the Indian Ocean, Asia, and now the Western Pacific. This is the first outbreak in Micronesia. With no prior exposure or immunity, attack rates will likely be very high and may involve a majority of the island's population. Although Chikungunya has lower mortality than dengue, it causes substantial morbidity and joint pain can persist for weeks or months. Chikungunya virus prevention consists of measures to prevent mosquitoes from biting people including personal protection efforts (window screens, bed nets, and repellents), measures to empty or eliminate containers where the mosquitoes breed, and use of insecticides. Yap State health officials are coordinating vector control efforts with regional partners.

After Chikungunya virus was identified as the cause of the outbreak, two DVBD entomologists traveled to Yap to identify the vector species and advise on vector control. *Aedes aegypti*, the mosquito species that usually transmits Chikungunya virus, is not widespread in Yap, but *Aedes hensilli*, another potential vector mosquito, is common on the islands.

Meanwhile, the team already in Yap was forced to evacuate to Guam in advance of Typhoon Haiyan. They returned to Yap with the entomologists on November 9. The effect of the typhoon on the outbreak remains to be seen.

To be continued....

For further information, please contact Susan Hills, MD, MPH at hri1@cdc.gov



Dr. Holly Biggs and Dr. Dan Pastula, Division of Vector-Borne Diseases EIS officers, unpacking larvicide and insect repellent.



Planning meeting during the Chikungunya virus outbreak on Yap, Micronesia.



Radio interview with Dr. Thane Hancock, Physician, Yap, and Dr. Dan Pastula, EIS officer, to disseminate Chikungunya prevention messages.

CDC Responds to Public Health Emergency in Syria

Submitted by: Julia Smith-Easley and Dr. Lisa Gargano, CDC

CDC's Emergency Response and Recovery Branch (ERRB) is responsible for implementing and coordinating CDC's response to complex humanitarian emergencies like the civil conflict taking place in Syria. The 28-months-old conflict has led to the displacement of a third of Syria's population. Fighting throughout the country has displaced 7 million Syrians with many living in overcrowded, unsanitary conditions. A third of all hospitals are reportedly closed. The United Nations (UN) reports more than 92,000 fatalities. This year has seen an increase in the number of Syrian refugees crossing international borders. According to The Office of the UN High Commissioner for Refugees (UNHCR), there are over 2 million refugees in Lebanon, Jordan, Turkey, Iraq, and Egypt. Every day, thousands of new refugees continue to enter bordering countries.

To respond to the immediate and long-term public health needs of those affected by crises, CDC draws upon expertise across the agency to work with partners. Efforts focus on activities such as national laboratory and surveillance systems; water, sanitation and hygiene interventions; mental health; reproductive health and emergency obstetrical care; and infectious disease control programs. Thus far, ERRB's efforts in Syria include:

- Working with U.S. Agency for International Development's (USAID) Disaster Assistance Response Team in Turkey to provide technical support and bolster the disease surveillance system for the polio response in Syria. ERRB experts are also working in CDC's Emergency Operations Center and with the USAID Response Management Team in Washington, DC to provide support for the polio response;
- Conducting needs assessments and providing recommendations to UNHCR about a surveillance, outbreak alert and response system to address the complexities of health care delivery inside the Za'atari refugee camp in Jordan, as well as helping to implement an Early Warning and Response Network (EWARN) surveillance system to detect and respond to potential disease outbreaks;
- Assisting with the response to a measles outbreak and developing a strategy to detect suspected cases of tuberculosis among Syrian refugees;
- Assessing reproductive health needs to help prevent excess newborn and maternal morbidity and mortality; reduce HIV transmission; prevent and manage the consequences of sexual violence; and plan for comprehensive reproductive health services;
- Providing training in epidemiologic and public health methods to humanitarian aid workers from countries in the region;
- Serving as UN Children's Fund (UNICEF) health advisor in the Za'atari refugee camp to coordinate and supervise UNICEF's child health, immunization, diarrheal disease control, and newborn care programs;



Zaa'tari Camp welcome sign, March 2013.



Women and children waiting for services at the Maternal and Child Health Clinic, Zaa'tari Camp, March 2013



Reproductive Health Facility, Zaa'tari Camp, March 2013.

- Supervising coordination and planning of a health and hygiene campaign and developing plans for increasing capacity for routine vaccination. ERRB is also assessing weekly vaccination and supervising oral rehydration corners at six different health care centers; and
- Collaborating with the International Medical Corps (IMC) to conduct an outcome study of IMC's mental health program in Jordan for Syrian and Iraqi refugees

A full report detailing ERRB activities in Syria will be available in 2014. Learn more about CDC's global health efforts at <http://www.cdc.gov/globalhealth>.

For further information, please contact: Julia Smith-Easley at zrc2@cdc.gov.

Improving Public Health Management for Action (IMPACT): A new program at CDC

Submitted by Shelly Bratton, MPH, and Alannah Kittle, CDC

The tools of public health have advanced rapidly in recent years with the development of improved vaccines, drugs, diagnostic tests, interventions, communications, and transportation. These advancements have made it increasingly more complex for managers to implement many of the public health programs. A gap exists due to a shortage of middle and senior public health officials with the management skills needed to run programs and health systems and improve the necessary processes for effective operations. Without effective management and organizational performance, many important global health initiatives fall short of their goals. The development of CDC's Improving Public Health Management for Action (IMPACT) program will advance health agendas by developing highly trained managers who will partner with scientists to ensure that the newest tools of public health are most effectively used to improve outcomes.

In the same way that CDC extended the Epidemic Intelligence Service approach worldwide through the Field Epidemiology Training Program (FETP), CDC is developing the IMPACT training program to create a group of mid-level public health management professionals. Similar to CDC's public health advisors, the IMPACT program will train professionals to manage health programs within their respective countries. The managers will be capable of working across health-related areas such as HIV/AIDS, tuberculosis, malaria prevention and control, polio eradication, other vaccine-preventable diseases, reproductive health, health promotion and education, non-communicable disease prevention and control, and emergency preparedness. In addition, the managers will partner with scientists and technical experts to ensure that large investments in global public health are used to improve outcomes and strengthen health systems.

The Bill and Melinda Gates Foundation has funded a one year planning grant that will allow CDC, in partnership with the CDC Foundation, to lay the foundation for the IMPACT program. In the first year of IMPACT, CDC will:

1. Determine the management needs and priorities among Ministries of Health;
2. Evaluate existing global public health management training programs; and
3. Design a pilot program for preparing mid-level managers for implementation in year two.

IMPACT Training Program



According to Dr. William Foege, former Director of the CDC, "In 60 years this will be the same kind of signature program as the Epidemic Intelligence Service and will address one of the major barriers in global health today – the gap between the tools available and the delivery of those tools."

CDC's model will differ from existing management training models by leveraging our unique advantage of engaging government-to-government with a focus on developing long-term, sustainable programs owned by ministries of health (MOH). CDC will work with MOHs on a comprehensive approach through the IMPACT program to develop effective managers who turn ideas into action and ensure that programs are accountable and effective.

For further information, please contact: Shelly Bratton at bwp8@cdc.gov.

CDC, PAHO and other global partners move forward with the Global Standardized Hypertension Treatment Project

Submitted by Pragna Patel, MD MPH.

Non-communicable diseases (NCDs) are responsible for almost three quarters of all deaths worldwide. These include deaths caused by injuries such as motor vehicle injuries, and chronic diseases, such as cardiovascular disease, cancer, diabetes, and chronic respiratory diseases. High blood pressure, also called hypertension, is a leading risk factor for cardiovascular disease and is responsible for over nine million preventable deaths globally each year.

According to Dr. Sonia Angell, Chief of the

Non-Communicable Disease Unit in CDC's Center for Global Health (CGH), Division of Global Health Protection and CGH's Senior Advisor for Global NCDs, "The broad-scale control of hypertension is challenging for all countries across the income spectrum, yet we have models that demonstrate it is possible and feasible – including in low- and middle-income countries." Successful treatment of hypertension involves the prescription, availability, and adherence to appropriate medications, and sustained long-term monitoring and adjustment of medications. Conditions that impede hypertension control include complex treatment regimens, limited availability and affordability of medications, and health care systems that are overburdened and under-resourced.

To address the growing challenges with hypertension control globally, CDC in collaboration with the Pan American Health Organization (PAHO) and other partners, is launching the Global Standardized Hypertension Treatment Project. This project involves the development and implementation of a framework for standardizing the medical treatment of hypertension. The framework was inspired by successful treatment models for infectious diseases such as those applied in global tuberculosis and HIV management. Central elements include a structured treatment approach with a core set of medications, treatment protocols with targets, and patient cohort monitoring. The project design aims to be feasible and flexible so it can be applied worldwide and complement existing hypertension guidelines.

Project development will first focus on the Latin American and Caribbean region. In March 2013, CDC and PAHO convened experts, including physicians, pharmacologists, epidemiologists,



Global Standardized Hypertension Treatment Project Workshop participants, March 2013, Miami, Florida.

and other leadership from ministries of health, professional organizations, and institutions in the region to support the development of the framework for improving hypertension control worldwide. Key components include:

- **Medication Treatment:** Identification of a core set of medications appropriate for the treatment of most adults with hypertension.
- **Availability of Core Medications:** Identification of mechanisms to increase the broad scale availability of the core set of medications. For the Latin American and Caribbean region, the PAHO Strategic Fund recently added to its Medicine List additional medications from the core set identified during the March workshops (www.paho.org/strategicfund).
- **Key Elements of Care Delivery:** Recommendations for key elements of care delivery to support effective hypertension treatment.

In the ensuing months, CDC in collaboration with regional and global partners will develop a plan to broaden stakeholder engagement and continually invite contributions to refine the approach. CGH NCD Unit and colleagues are starting implementation work with interested countries in the LAC region. Lessons learned will inform global dissemination of the framework to improve hypertension control worldwide.

For further information about the Global Standardized Hypertension Treatment Project and to engage in implementation of the framework, please contact Pragna Patel, MD, MPH at plp3@cdc.gov.

Training and Resources

CDC's new non-communicable disease training materials are now available online

Submitted by Sharmily Roy

Non-communicable diseases (NCDs) are responsible for almost 40 million deaths each year, which represents almost three quarters of all deaths worldwide. These include injuries caused by road traffic, and chronic diseases, such as cardiovascular disease, cancer, diabetes, and chronic respiratory diseases. CDC is addressing the global burden of NCDs through various efforts, and has developed a series of NCD training materials, which are now available online and can be viewed and downloaded from CDC's Field Epidemiology Training Program (FETP) website at http://www.cdc.gov/globalhealth/fetp/ncd_modules.htm.

FETPs are typically a two year, in-service training program modeled after the U.S. Epidemic Intelligence Service, an applied epidemiology training program created by CDC in 1951. Since 1980, CDC has worked with ministries of health and other partners to establish 50 FETPs serving 69 countries. FETPs emphasize practical experience, with residents spending less than 25% of their time in the classroom and the remaining 75% or more of their time conducting field work under the supervision and guidance of an experienced mentor. The new NCD training materials have been incorporated into the FETP NCD curriculum and are designed to increase capacity in NCD epidemiology, surveillance and management. Components of the curriculum have also been used in short courses for non-FETP audiences (e.g., district level health officers).

There are a total of 24 training modules which include facilitator and participant guides, PowerPoint slides, as well as other user aides. Topics include: analyzing large datasets, evaluating public health programs, and developing a protocol.

These training materials were designed to build NCD capacity globally, particularly in low- and middle-income countries, where the number of people affected by NCDs is growing and access to resources to manage and control the diseases are limited. The modules were pilot tested with the FETPs in Jordan, China, Columbia, Kenya, Tanzania, and Thailand.

CDC supports global NCD capacity by:

- Strengthening national and global disease surveillance;
- Scaling up the implementation of evidence-based measures to reduce risk factors associated with NCDs; and
- Promoting models that improve management and treatment of NCDs.



FETP residents and Ministry of Health (MOH) partners testing an online lifestyles monitoring system, at the Pasto Center in Colombia, 2012.



Participants of the Tobacco Control Strategy Meeting with community leaders in Pasto, Columbia, 2012.

NCD Modules at Work

In Tanzania, Dr. Faraja Lyamuya, a FETP training participant, used the new NCD training materials along with mentorship from subject matter experts to conduct a field project aimed at improving issues of access related to diabetes management at a community clinic supported by the Dodoma Regional hospital in Tanzania. Through qualitative and quantitative research, Dr. Lyamuya found a high number of patients without adequate glucose control, which leads to complications. Following the completion of a survey, Dr. Lyamuya made several evidence-based recommendations to the hospital administrators related to diabetes management, such as case management, increased availability of subsidized oral hypoglycemic drugs, which are known to improve adherence, and patient education. Her recommendations were later implemented in the hospital.

The next steps are to fully implement and evaluate the impact of the NCD curriculum and subsequent field activities undertaken by FETP residents.

For further information, please contact Sharmily Roy at sgroy@cdc.gov.

Nigeria FELTP hosts malaria workshop in Abuja to address gaps in malaria research

Submitted by: Patrick Nguku, MD, Resident Advisor, Nigeria Field Epidemiology and Laboratory Training Program (NFELTP)

Since its inception in 2008, the Nigeria Field Epidemiology and Laboratory Training Program (NFELTP) has assisted in numerous disease surveillance evaluations and outbreak responses throughout the country. Several NFELTP projects have specifically focused on malaria, including research studies in which NFELTP graduates and NFELTP residents conducted evaluations of malaria surveillance systems at different levels of the health system, evaluations of malaria laboratory diagnostic tools and services, and analysis of malaria surveillance data. Current NFELTP residents are conducting several research projects involving malaria including assessing whether health care providers are adhering to the national malaria policy and treatment guidelines, evaluating the accuracy of malaria diagnostic tools, estimating household costs of malaria, determining the relationship between malaria infection and CD4 (cells in the immune system) counts among persons living with HIV/AIDS, identifying reasons for the non-use of insecticide treated nets, and assessing the burden of malaria following spraying the inside of homes with insecticides.

While past research projects have resulted in valuable information, there is a need to align the NFELTP's malaria studies with current national research priorities of the National Malaria Elimination Program. Until now, there has been a gap between the academic requirements of NFELTP training and the priority research needs of the Nigerian National Malaria Elimination Program (NMEP). At this crucial stage, there is a need to bridge the existing gap and create a platform that will assist NFELTP residents in identifying topics for their research projects that are in line with identified national research priorities.

In order to address these concerns, a scientific seminar was held in September 2013 with the theme 'Strengthening NFELTP Malaria-Related Research' at the NFELTP training facility in Abuja, Nigeria. The goal of the seminar was to encourage and assist NFELTP residents in developing malaria-related relevant research projects as part of their training.

The seminar was attended by 30 first and second year NFELTP residents. The outcome of the Nigeria Malaria Indicator Survey and the list of prioritized research topics of NMEP were presented. Key note speakers from the University of Calabar (Malaria Case Management and Malaria in Pregnancy), Ahmadu Bello University (Health Economics), University of Ilorin (Vector Control), University of Ibadan (Socio-Behavioural Science) and CDC Atlanta (Malaria Surveillance) identified research areas with gaps in knowledge where residents could choose to focus. Topics ranged from Malaria Case Management, Malaria in Pregnancy, Malaria Surveillance, and Vector Control to the Socio-Behavioral Science and Economics of Malaria Control. Experts from CDC and other U.S. agencies helped mentor residents during the workshop. The workshop was



Nigeria FELTP residents engage in group discussions about research gaps in malaria research during workshop in Abuja, Nigeria, September 2013.



Dr. Sola Oresanya presenting at the malaria workshop, 23 – 25 September 2013.



Participants of the Nigeria FELTP workshop on Strengthening NFELTP Malaria-Related Research, September, 2013, Abuja, Nigeria.

coordinated by Dr. Fawole, academic coordinator NFELTP and Dr. Olufemi Ajumobi, NFELTP graduate and Epidemiologist National Malaria Elimination Program.

At the end of the 3-day workshop, the participants identified an inventory of relevant research topics that can be implemented by NFELTP residents. Draft research proposals were developed and opportunities for networking and collaboration among residents and stakeholders were created.

This workshop was useful in ensuring that NFELTP continues to contribute to national malaria research priorities.

For further information, please contact, Dr. Patrick Nguku at NgukuP@ng.cdc.gov